

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number  
WO 2004/057395 A1

(51) International Patent Classification<sup>7</sup>: G02B 6/34 (74) Agents: CLAYTON-HATHWAY, Anthony, Nicholas et al.; Fry Heath & Spence LLP, The Gables, Massetts Road, Horley, Surrey, RH6 7DQ (GB).

(21) International Application Number: PCT/GB2003/005634 (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 23 December 2003 (23.12.2003) (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English (26) Publication Language: English

(30) Priority Data: 0229732.3 23 December 2002 (23.12.2002) GB (71) Applicant (for all designated States except US): THE UNIVERSITY OF SURREY [GB/GB]; Guildford, Surrey GU2 7XH (GB).

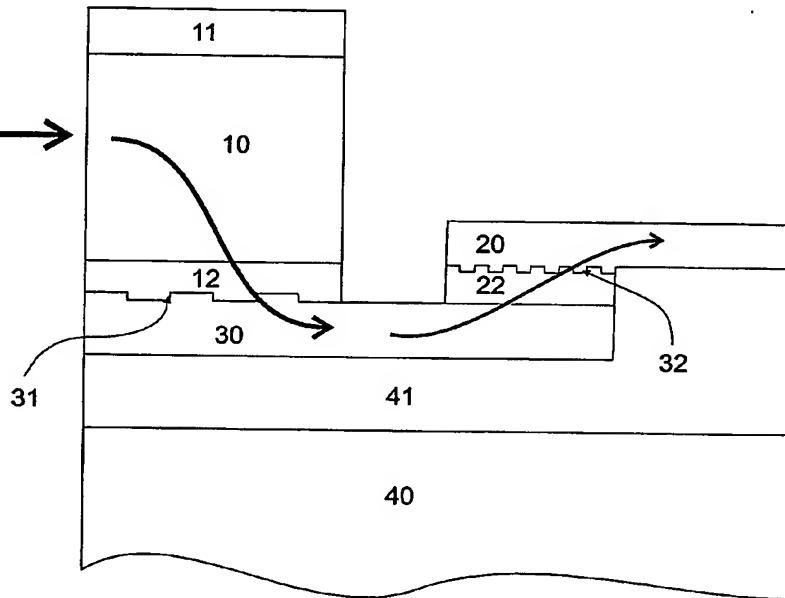
(72) Inventors; and (75) Inventors/Applicants (for US only): REED, Graham [GB/GB]; The University of Surrey, Guildford, Surrey GU2 7XH (GB). MASANOVIC, Goran [YU/GB]; The University of Surrey, Guildford, Surrey GU2 7XH (GB). PASSARO, Vittorio [IT/IT]; The University of Surrey, Guildford, Surrey GU2 7XH (GB).

## Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

## (54) Title: DUAL GRATING ASSISTED OPTICAL COUPLER



(57) Abstract: An optical coupler comprises an input waveguide, an intermediate waveguide, an output waveguide, a first grating situated between the input and intermediate waveguides, and a second grating situated between the intermediate and output waveguides such that, in use, light propagating in the input waveguide is coupled into the intermediate waveguide with the assistance of the first grating, and thence is coupled into the output waveguide with the assistance of the second grating. The coupler is a directional coupler, in particular a dual grating-assisted directional coupler, and may be used to couple light between an optical fibre and an integrated semiconductor device, or between dissimilar waveguides.

WO 2004/057395 A1



**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*